

In re Appln. of Connors et al.  
Appln. No. 09/091,508

### REMARKS

Independent claim 2 has been amended to improve the form of the claim and more distinctly claim the subject matter that Applicants regard as their invention and the scope of the claim has not been narrowed in any way. Independent claims 3 and 4 and those claims depending there from have been cancelled, without prejudice, to simplify matters and expedite prosecution of the remaining claims. Applicants retain the right to file one or more divisional applications directed to the inventions set forth in the cancelled claims. The Summary of the Invention section of the specification and the Abstract have been amended to conform to the claims as amended. No new matter has been entered.

Applicants respectfully submit that a separation element including a hollow pleated pack being at least about 40 inches in length and having an interior diameter of at least about 2 inches as defined in claim 2, are patentably distinct over the prior art. None of the prior art references even remotely teach or suggest the critical importance of a length of at least about 40 inches in combination with an interior diameter of at least about 2 inches in the context of claim 2, as well as claim 1. The combination of the length and inner diameter limitation is critical to the separation elements defined by claims 1 and 2 in many applications and provides significant advantages over prior art separation elements of shorter length and smaller inner diameters.

For example, as noted in the specification, longer, larger inside diameter separation elements greatly decrease the frequency with which elements must be removed and replaced and vastly reduces the number of elements which must be handled during removal and replacement. Decreased change-out frequency is significant not only from the standpoint of reducing overall waste and costs associated with materials, labor, and assembly downtime, but also in reducing risks to human safety. Personnel that must change-out separation elements used to filter hazardous materials are thus exposed to far fewer elements far less often in accordance with independent claim 2 as well as claim 1. Reducing the frequency of change-out and the number of elements which must be handled during change-out means reducing the amount of time in which personnel are exposed to hazardous materials such as toxic and radioactive waste.

It was for exactly these reasons that a panel of independent and impartial industry experts selected the separation element, of the type defined in claim 2 to receive Chemical Processing Magazine's Vaaler Award. The judges recognized the reduced number of elements is vital to the needs of the industry. Copies of the pages from the September 1999 Chemical Processing Magazine in which the Vaaler Awards were presented were attached to the Response filed July 11, 2001. It is exactly this type of objective evidence of non-obvious that is entitled to great weight in determining non-obviousness of an invention.

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In view of the amendment and remarks recited herein, the application is considered in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue.

Should there remain any issues outstanding, the Examiner is invited to call the undersigned at her Washington, D.C. office.

Respectfully submitted,

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#### Certification of Facsimile Transmission

I hereby certify that this Amendment is being facsimile transmitted to the Patent and Trademark Office on the date shown below.

Signature *Shannon D. Schemel*  
Shannon D. Schemel

Date Sept. 20, 2001

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### SPECIFICATION AND CLAIMS AS AMENDED

Amendments to the paragraph beginning at page 3, line 28:

~~In accordance with a further aspect, the present invention is directed to separation elements, where the separation element comprises a pleated pack and an end cap. The pleated pack includes a porous medium and a first end and has a length greater than about forty inches and an interior diameter greater than about two inches. The end cap includes a first segment and a second segment mounted to the first end of the cap. The first and second segments are arranged to slide with respect to one another. The end cap is extendable from a first position in which the first and second end caps are spaced a first distance from each other to a second position in which the first and second end caps are spaced a second distance from each other. The second distance is greater than the first distance, and the end cap maintains a fluid tight seal in both positions.~~

Amendment to the paragraph beginning at page 4, line 9:

~~In accordance with a further aspect, the present invention is directed to separation elements, where the separation element comprises a pack, which includes a porous medium and a first end, and an end cap, having a first segment, a second segment mounted to the first end of the pack, and a sealing member coupled to at least one of the first and second segments. The first segment is slidably engaged with the second segment such that the first segment is movable between first and second positions. In the first position, the sealing member is relaxed, and in the second position, the sealing member is compressed by the first and second segments and thereby energized and has an outer diameter greater than the outer diameter of the second segment of the end cap.~~

Amendments to existing claims:

2. (Four Times Amended) A separation element for separating one or more components from a fluid flowing through the separation element, the separation element comprising:

(a) a hollow pleated pack ~~including a porous medium comprising a polymeric material or glass fiber material, the pleated pack~~ having a plurality of pleats, wherein the plurality of pleats includes roots, crowns, legs extending between the roots and the crowns, an inner periphery at the roots defining an upstream side, and an outer periphery at the crowns defining a downstream side and wherein each pleat has a height  $h$  greater than  $(D-d)/2$  where  $D$  is the outer diameter at the outer periphery of the pleats and  $d$  is the inner diameter at the inner periphery of the pleats, a retainer disposed around the pleats, and first and second ends, ~~and a~~

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~~porous medium comprising a polymeric material or a glass fiber material,~~ the hollow pleated pack being at least about 40 inches in length and having an interior diameter of at least about 2 inches; and

(b) first and second end caps, each end cap being connected to an end of the pack, wherein one of the first and second end caps includes a seal having a larger outside diameter than the largest outside diameter of the hollow pleated pack and the other end cap and wherein the end caps include a polymeric, thermoplastic or elastomeric material.

Amendments to the Abstract:

#### ABSTRACT

Separation elements may comprise two or more hollow pleated pack sections, joiner caps, and first and second end caps. The joiner caps are attached to at least one end of each of the two or more pack sections. Adjacent joiner caps are secured to coaxially connect the pack sections and joiner caps into a hollow separation arrangement which is at least about 40 inches in length and which has an interior diameter of at least about two inches. The first and second end caps are attached to the hollow separation arrangement. Separation elements may also comprise a hollow pleated pack and first and second end caps. The hollow pleated pack is at least about forty inches in length and has an interior diameter of at least about two inches. The first and second end caps are connected to the ends of the pack. ~~Separation elements may also comprise a pleated pack and an end cap. The end cap includes a first segment and a second segment mounted to one end of the pack. The first and second segments are slideably arranged with one another and the end cap is extendable from a first position to a second position. The separation element may also comprise a pack and an end cap having a first segment, a second segment mounted to a first end of the pack, and a sealing member coupled to at least one of the first and second segments. The first and second segments are movable with respect to each other from a first position in which the sealing member is relaxed to a second position in which the sealing member is compressed by the first and second segments.~~